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# The Nature of Intellect[1]

THE FACT of human life of whose nature we seek a more exact description is the ability to deal with things or persons or ideas by the use of ideas. We contrast intellectual power over things as by ideas about length or weight or heat with nonintellectual power over things as by strength or skill or acuity of vision. We contrast intellectual power over people as by consideration of facts about them with nonintellectual power over them as by good temper or courage or physical charm. We contrast intellectual power over ideas as by using other ideas to gain success with them, with nonintellectual power over them as by industry or patience.

The facts and arguments which I shall present do not, however, depend for relevance or value upon the acceptance of this particular identification and demarcation of intellect. They will apply nearly or quite as well to any preliminary description which any competent psychologist would devise for those features of life wherein the Aristotles differ most widely from the inmates of asylums for idiots, and wherein the life of a man thinking effectively about mathematics or medicine or manufacturing differs from the life of the same man eating, drinking, swimming or playing tennis without, as we say, an idea in his head.

If a score of competent psychologists should list on the one hand all the products whose production depends primarily upon intellect—all the tasks for success with which intellect is the sine qua non; and on the other all the products or tasks which they regarded as nonintellectual—success thereat being independent of intellect—they would show

[1] The investigation reported in this article is a part of a general investigation, made possible by a grant from the Carnegie Corporation. This paper was presented to Section Q, American Association for the Advancement of Science, January 1, 1925.

very substantial agreement. Where they appeared to differ, the differences would be unimportant for our purpose. Very seldom would the same task appear on opposite sides of the ledger. When it did, the difference would resolve itself into a difference in favor of a narrower restriction of intellect (for example, to ability to deal with abstract ideas or to ability to deal with relations), or in favor of a wider extension of it (for example, to certain tasks where ideas are not at work, at least not obviously). The facts and arguments which I shall present will apply regardless of such shrinkage or swelling in the area regarded as intellectual.

Beginning, then, with this loosely determined group of products which intellect produces, tasks at which intellect brings success, we may inquire concerning its surface nature as a fact in human behavior or its deeper nature as a fact of fundamental processes in the mind or brain. We may investigate the thinking and action of men who have much intellect to discover more precisely and fully the features in which they differ from men who have little; or we may try to discover more ultimate causes of these differences. We may compare a man's obvious life, when he is using his intellect little or not at all, with his life when he makes large use of it, other factors remaining the same, to see just what the differences are; or we may try to discover hidden forces which produce these differences. We may study the nature of intellectual tasks, the production of intellectual products, or the nature of the ultimate power or powers whereby a man can succeed with such tasks. There may be, of course, much to be revealed concerning facts intermediate between the description of intellectual tasks and the discovery of their ultimate cause.

The standard orthodox view of the surface nature of intellect has been that it was divided rather sharply into a lower half, mere connection-forming or the association of ideas, which acquired information and specialized habits of thinking, and a higher half characterized by abstraction, generalization, the perception and use of relations and the

selection and control of habits in inference or reasoning; and ability to manage novel or original tasks. The orthodox view of its deeper nature, so far as this has received attention, has been that the mere connection or association of ideas depends upon the physiological mechanism whereby a nerve stimulus is conducted to and excites action in neurones A B C rather than any others, but that the higher processes depend upon something quite different. There would be little agreement as to what this something was, indeed little effort to think or imagine what it could be, but there would be much confidence that it was *not* the mechanism of habit formation.

The hypothesis which I present and shall defend admits the distinction in respect of surface behavior, seeking also to clarify it, but asserts that in their deeper nature the higher forms of intellectual operation are identical with mere association or connection forming, depending upon the same sort of physiological connections but requiring *many more of them*. By the same argument the person whose intellect is greater or higher or better than that of another person differs from him in the last analysis in having, not a new sort of physiological process, but simply a larger number of connections of the ordinary sort.

More exactly my hypothesis is as follows: Let $C$ represent whatever anatomical and physiological fact corresponds to the possibility of forming one connection or association or bond between an idea or any part or aspect or feature thereof and a sequent idea or movement or any part or aspect or feature thereof. Then if individuals $I_1$, $I_2$, $I_3$, $I_4$, etc., differing in the number of $C$'s which they possess but alike in other respects, are subjected to identical environments, the amount or degree of intellect which any one of them manifests, and the extent to which he manifests "higher" intellectual processes than the other individuals, will be closely proportional to the number of $C$'s which he possesses. If we rank them by intelligence-examination scores, the order will be that of the number of $C$'s. If we rank intellectual proc-

esses in a scale from lower, such as mere information, to higher, such as reasoning, the individuals who manifest the highest processes will have the largest number of *C*'s.

I was led to something very like this hypothesis by studies of the intellectual life of the lower animals and of children. In 1901 I wrote:

> It may be that these very reasons, self-consciousness and self-control which seem to sever human intellect so sharply from that of all other animals, are really but secondary results of the tremendous increase in the number, delicacy and complexity of associations which the human animal can form. It may be that the evolution of intellect has no breaks, that its progress is continuous from its first appearance to its present condition in adult civilized human beings. If we could prove that what we call ideational life and reasoning were not new and unexplainable species of intellectual life, but only the natural consequences of an increase in the number, delicacy, and complexity of associations of the general animal sort, we should have made out an evolution of mind comparable to the evolution of living forms. . . .
>
> It has already been shown that in the animal kingdom there is, as we pass from the early vertebrates down to man, a progress in the evolution of the general associative process which practically equals animal intellect, that this progress continues, as we pass from the monkeys to man. Such a progress is a real fact; it does exist as a possible *vera causa;* it is thus at all events better than some imaginary cause of the origin of human intellect, the very existence of which is in doubt. In a similar manner we know that the neurones, which compose the brain and the connections between which are the physiological parallels of the habits that animals form, show, as we pass through the vertebrate series from the fishes to man, an evolution along lines of increased delicacy and complexity. . . .
>
> The next important fact is that the intellect of the infant six months to a year old is of the animal sort, that ideational and reasoning life are not present in his case, that the only obvious intellectual difference between him and a monkey is in the quantity and quality of the associations formed. In the evolution of the infant's mind to its adult condition, we have the actual transition within an individual from the animal to the human type of intellect. If we look at the infant and ask what is in him to make the future thinker and reasoner, we must answer either by invoking some mysterious capacity, the presence of which we cannot demonstrate, or by taking the difference we actually do find. That is the difference in the quality and quantity of associations of the animal sort. . . .

The increased delicacy and complexity of the cell structures in the human brain give the possibility of very small parts of the brain-processes forming different connections, allow the brain to work in very great detail, provide processes ready to be turned into definite ideas. The great number of associations which the human being forms furnish the means by which this last event is consummated. The infant's vague perceptions of total situations are by virtue of the detailed working of his brain all ready to split up into parts, and his general activity and curiosity provide the multitude of different connections which allow them to do so. The dog, on the other hand, has few or no ideas because his brain acts in coarse fashion and because there are few connections with each single process. . . .

As a result of a study of the process of understanding a paragraph and solving problems based on it, I presented evidence showing that

three simple mechanisms—underpotency and overpotency of elements, dislocation or disrelation of elements, and wrongness or inadequacy of connections—seem to be all that are needed to explain errors in thinking; conversely, proper balance and organization of elements and right bonds therewith seem to explain correct thinking, no matter how elaborate or subtle. Thinking and reasoning do not seem to be in any useful sense opposites of automatism, custom, or habit, but simply the action of habits in cases where the elements of the situation compete notably.

It is of course the case that, along with the balanced action of elements, there goes an inspection and validation of them and the ideas or acts they evoke, whereby each succeeding situation is often amended by increasing or reducing the potency of certain of its elements, and whereby certain futile ideas may be cast away entirely. These welcomings and rejectings, retainings and lettings go, are, however, themselves nothing more than situation-response bonds, where the response is attending to or turning from, cherishing, repeating, saying "no" or "yes" to, or the like. . . .

I conclude, therefore, that the general laws of human behavior, which explain why a pupil puts his clothes on or off and eats or leaves uneaten his breakfast, explain why he succeeds or fails in making geometrical demonstrations or scientific researches, and that there exists no fundamental physiological contrast between fixed habit and reasoning.

But I conclude also that the complexity and subtlety of the competition and cooperation of bonds required to under-

stand, say a page of a textbook in physics or a chapter of one of St. Paul's epistles, wherein each is given a certain potency and acts in certain relations to the others, is far beyond any description hitherto given by associationist psychology. The number of *C's* which have to exist in order to create understanding of even one simple sentence such as, "If John and Mary come to your house before dinner, bring them to the school," may well be over twenty thousand; and over two hundred of them or their derivatives may have to be active during the few seconds in which the sentence is heard and understood.

In our studies of the psychology of arithmetic and algebra, we have found evidence of the same sort.

> Reasoning is not a radically different sort of force operating against habit, but the organization and cooperation of many habits, thinking facts together. Reasoning is not the negation of ordinary bonds, but the action of many of them, especially of bonds with subtle elements of the situation. Some outside power does not enter to select and criticize; the pupil's own total repertory of bonds relevant to the problem is what selects and rejects. An unsuitable idea is not killed off by some *actus purus* of intellect, but by the ideas which it itself calls up in connection with the total set of mind of the pupil, and which show it to be inadequate.

This year Mr. Tilton and I have secured new evidence in support of this doctrine that the number of connections is the cause of intellect, in the shape of very high correlations between scores in tasks representing mere associative learning and scores in tasks representing abstraction, generalization, the perception and use of relations, and selective thinking by inference and reasoning.

For example, Mr. Tilton has measured 250 boys of Grade 8 in respect of the number of words known in a list of 140 words comprising 20 words of each of seven levels of difficulty from tasks like:

> Look at the first word. Find the other word which means the same or most nearly the same.

**arrange** 1 put in order....2 hasten....3 distance....4 frighten... 5 charge

**different** 1 not the same...2 quarrelsome...3 better...4 complete... 5 not here

to tasks like:

cloistered 1 miniature..2 bunched..3 arched..4 malady..5 secluded
reciprocal 1 saturnine..2 mutual..3 receptive..4 morose..5 careless

The same boys were measured in respect of the number of sentences completed correctly in a graded list ranging from tasks like:

Water is.....to drink.
A horse is.....than a cat.

to tasks like:

..... virtue weighed, what worthless ..... is gold.
One finds ..... persons who ..... the pains ..... have the leisure or ..... possess the knowledge to enable them to ..... an independent .....

The mere knowledge of the meanings of words approximates to a typical result of associative thinking. The completions of the sentences are originals requiring the perception of relations, and selective reasoning.

The correlation, when corrected for attenuation and for the restricted variability of a single grade's population, is .93.

The same group were also measured in respect of such merely informational tasks in arithmetic as:

1 mile is how many feet?
What is the square root of 25?
Which months have only 30 days?
What is the value of $\pi$?

and then in respect of novel tasks requiring the higher processes to a notable degree, such as:

Write the numbers and signs in each line below in the proper order, so that they make a true equation as shown in the three sample lines. Use the bottom of the page to figure on if you need to.

2 5 6 7 10 = + + —
1 4 8 15 20 = + — —

The correlation, corrected for attenuation and restricted range, was .87.

These correlations between associative thinking and the higher sorts of thinking are just as close as those between one test of associative thinking and the other or between one test of higher thinking and the other, with a change in content from words, to numbers. By the facts of this experiment, the associative thinking and the higher thinking trace back to just the same sources.

I have measured one hundred university students in respect of score in sentence completions, picture completions, arithmetical problems, understanding directions and geometrical relations, selected to represent typical forms of the higher thinking; and, on the other hand, in knowledge of single words and in an extensive test of information. The results corroborate Mr. Tilton's work. The correlations between the scores in higher thinking and the scores in associative thinking are very high. When corrected for attenuation and for the restricted variability of the group, they are around .90. The effect of changing from the higher to the lower sort of thinking with words is less than that of changing from verbal content to arithmetical content or pictorial content. It is no greater than the effect of changing from knowledge of words, as in a vocabulary test, to knowledge of facts as in an information test.[2]

458 pupils in grade 11 in city K were tested with 350 vocabulary tasks and also with two forms of the I. E. R. Selective and Relational Thinking, Generalization and Organization examination.[3]

676 pupils in grade 11 in city K, closely similar in ability to the 458 just mentioned, were tested with over a hundred reading tasks and also with the two forms of the I. E. R. Sel. Rel. Gen. Org. examination.

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[2]This was not as purely a test of associative thinking as would have been most desirable, a certain amount of organization and inference being of assistance in some of the tasks; but it was so to an enormously greater extent than the other composite.

[3]This is a composite of stock tests of so-called general intelligence

The raw correlations of the general intelligence score with the total vocabulary score (sum of rights) and with the total reading score (sum of rights) were .72 and .73, respectively. The correlation of the general intelligence score with that from another similar pair of examinations is .92 by the Spearman-Brown formula, the correlation of one form with the other being .85. The correlation of the vocabulary score with that of another similar examination is .98 by the Spearman-Brown formula, the correlation between two random halves thereof being .97. The correlation of the reading score with that of another similar examination is not known, but will not be far from .9. Using .92, .98, and .90 for these self-correlations, we have .76 and .80 as the coefficients corrected for attentuation between a stock intelligence score and vocabulary and reading respectively. The mere knowledge of single words seems almost as "intellectual" as the comprehension of paragraphs.

If we use for each individual a level score representing the degree of difficulty at which he can succeed with 50% of the tasks, a similar result is obtained. The coefficients of correlation for the group in question are:

| | *Raw* | *Corrected for attenuation*[4] |
|---|---|---|
| General intelligence score with vocabulary ... | .72 | .77 |
| General intelligence score with comprehension of paragraphs ..... | .66 | .76 |

I have measured 100 university students in (1) a composite of sentence completion, comprehension of paragraph and vocabulary, (2) a composite of picture completion, pictorial analogies and geometrical analogies, (3) arithmetical problems,[5] and (4) an extensive information test. The

[4]The self-correlation of the vocabulary level-score is .94. The self-correlation of the reading level-score is approximately .80 (.77 with a level-score from a less extensive test).

[5]The arithmetical tasks were not hard enough to measure the ability of the group well, and the correlations would probably be considerably higher with an adequate set of mathemetical tasks. But they would hardly surpass the information correlations.

correlations of the information test with the other three are actually higher than those of any other one of the four with the remaining three. The facts are shown in Table 1.

TABLE I.—*The Intercorrelations of Scores in* (1) *a composite of Sentence Completions, Comprehension of Paragraphs and Vocabulary,* (2) *a Composite of Picture Completions, Pictorial Analogies, and Geometrical Analogies,* (3) *Arithmetical Problems, and* (4) *Information Tests.*

100 University students

| | *Raw correlations* | | | | *Correlations corrected for attention* | | |
|---|---|---|---|---|---|---|---|
| | 2 | 3 | 4 | | 2 | 3 | 4 |
| (1) | .36 | .20-1/2 | .60 | (1) | .43 | .26 | .72 |
| (2) | | .43-1/2 | .33 | (2) | | .63 | .46-1/2 |
| (3) | | | .34 | (3) | | | .46 |

I must stop abruptly, leaving my defense of the hypothesis very meager. The matter will be treated fully in a monograph on the Measurement of Intelligence. The hypothesis has many difficulties and possible qualifications; but it explains more difficulties than it raises, and certain of the qualifications and restrictions become arguments in its favor.

EDWARD L. THORNDIKE.

# International Relations

INTERNATIONAL educational relations apparently interest many individuals and groups in the United States. Some conspicuous foundations like the Rhodes Trust and the Institute of International Education are generally known. A few persons have seen the "Handbook of International Organizations (Associations, Bureaux, Committees, etc.)" published in Geneva in 1923 by the League of Nations. This is a pamphlet of 203 pages, including a descriptive list together with alphabetical, geographical, and analytical indices. The editor of the "Handbook of International Organizations" has expressly excluded all organizations which, "notwithstanding their international aims and activities, are, however, clearly national in their constitution and in their sources of financial support." A list of American bodies in the field of international educational relations, although searched for widely, has not yet been found, and must be made available to all parties interested. The American Council on Education has already a list of 76 organizations, the names, addresses, purposes, officers, financial support, publications, and history of which will be made known in THE EDUCATIONAL RECORD of April, 1925. The Executive Council of the American Association of University Professors, at its meeting in Washington, December 12, 1924, requested simultaneous publication in the Bulletin of that Association. The American Council on Education will appreciate cooperation in securing additions to the following list:

*The United States of America*: The Department of State; The Department of the Interior, the Bureau of Education; The Department of Labor, the Bureau of Immigration; the United States Senate, the Committee on Foreign Affairs.

*The League of Nations*: Committee on Intellectual Cooperation, American Committee on Intellectual Cooperation, International University Information Office.

*The Pan American Union:* Division of Education.

*International Associations*: Atlantic Conference, Association for International Interchange of Students, International Council of Women, International Educational Association, International Federation of University Women, Pan-American Educational Conference, Pan-Pacific Educational Conference, Pan-Pacific Union.

*American Associations*: American Association of University Professors, Committee on International Relations; American Association of University Women, Committee on International Relations; American Institute of Archaeology; American Junior Red Cross; American Red Cross; Association of American Universities, Committee on Oriental Institutions; American College of Surgeons; American Council on Education, Division of International Relations, Committee on American University Union; Carnegie Corporation; Carnegie Endowment for Peace; Carnegie Foundation for the Advancement of Teaching; Committee on Foreign Travel and Study; Commonwealth Fund; Crane Friendship Fund; General Education Board; Hall Foundation; International Health Board; International Education Board; International Y. M. C. A., Committee on Friendly Relations among Foreign Students; Institute of International Education; Laura Spelman Rockefeller Memorial; Moro Foundation; National Academy of Design; Near East Relief; National Education Association; National Collegiate Athletic Association; National Research Council; Penfield Foundation; Phelps-Stokes Fund; Rockefeller Foundation; United States Chamber of Commerce, Committee on Education for Foreign Trade, Committee on Foreign Travel and Study; Y. W. C. A.

*Organizations Relating the United States and Another Country or Group of Countries*:

Austria: England-America Institute.

Baltic-American Society.

Belgium: Committee on Relief in Belgium.

British Empire: American University Union, London Branch; English-Speaking Union; Rhodes Trust; Sulgrave Institution; British Council of Interchange of Speakers; Interchange Committee of the Universities of the British Isles; Universities Bureau of the British Empire; Riggs Fellowship; Walter Hines Page Fellowships; Graff Fellowship.

Bulgaria: The English-Speaking League.

China: Chinese Educational Mission; Educational Bureau of the Chinese Ministry of Education; China Society.

Czecho-Slovakia: Luncheon Conference on Slavonic Studies.

France: Office National des Universités Françaises. Alliance Française: American University Union, Paris Branch; American Field Service; American Library; Anciens Eléves; American

University Women's Club in Paris; American Council on Education, Committee on Franco-American Exchange, American University Union, Paris.

Germany: German-American Exchange, Amerika Institut.

Hungary: American-Hungarian Foundation.

Italy: American Academy in Rome; Italy-America Society, Library for American Studies in Italy.

Netherlands: Netherlands-America Society; Netherlands Committee for International Academic Relations.

Persia: Persia Society.

Poland: Poland Society; Polish-American Scholarship Committee.

Russia: Russian Student's Relief.

Scandinavian Countries: American-Scandinavian Foundation.

Spain: Junto para Ampliación de Estudios.

*American Academies and Schools and Colleges Abroad*: American Academy in Rome; American School of Classical Studies in Athens; American School of Prehistoric Studies; American School of Archaeology, and American School of Oriental Research, Jerusalem; American School, Bagdad; Robert College, Constantinople; American University at Cairo; American University of Beirut; Constantinople Woman's College; Yale in China; American College, Rome; American College, Louvain.

*International Relations of Individual American Colleges and Universities:* Amherst, Armour, Bryn Mawr, Brown, California, Columbia, Delaware, Georgetown, Harvard, Johns Hopkins, Massachusetts Institute of Technology, Michigan, Oberlin, Pennsylvania, Princeton, Rosary, Rochester, Smith, Utah, Vassar, Wellesley, Williams, Yale, etc.

*American Relations of Foreign Universities*: National University of Mexico, University of Manchester, Cambridge University, Imperial College of Science and Technology, etc.

*Foreign Missionary Educational Institutions.*

The universities and colleges of this country are in need of full and accurate information concerning foreign institutions, such as the Association of American Universities possesses concerning each American college: personnel of faculty, curricula, laboratory and library equipment, requirements for admission and graduation, financial stability, educational standards, success of former students when resident in American institutions of higher education. Examples of the need for these facts are frequent. The Associated Press

published, October 1, 1924, a dispatch from Peking regarding an "apparently authentic" report that the Minister of Education had issued instructions to authorities in the provinces to cut down the number of students to be sent to America. It was alleged that the communication to the provinces included these words: "The reason why most of the students go to America is that they easily obtain admission into American colleges where they become special students. In two or three years they return to China, being considered to have graduated. Although there are not a few who go to the United States to obtain a real education, a majority go simply to get a degree." If there is foundation for the report that this statement has been issued, one must make allowance for any political purpose in the content. American universities, however, will be wise to consider the allegations especially in view of protests from American teachers in China to American educational authorities regarding lowering of standards in the case of students from China. It is clear that, because of sheer friendliness for China and lack of information concerning Chinese educational establishments, there has been a generous, possibly too generous, recognition of the credentials of Chinese students. Certainly, and for the same reasons, there is a variety of practice even among the best colleges in classifying Chinese students with identical credentials. Such opinions as have been assembled or made available informally to college authorities are valuable; but most useful will be a real study and presentation not of opinions but of all pertinent facts on which opinions may be based. In the case of students from India a similar difficulty arises. Even British academic authorities are at present uncertain of the situation in the universities of India, because they are now passing from the control of British teachers to that of native professors. The General Medical Council has been compelled recently to refuse a continuance of recognition of the pass degrees of Calcutta University. In the case of Latin-American countries there is a like need for exhibition of the facts. Already

the American Council is cooperating with the Pan American Union in such a study. Facts concerning Continental European universities and colleges sending students to the United States and even British institutions should likewise be fully made known to American college officers. It is true that the American Council on Education and various committees and organizations and individuals have made available their opinions regarding the ranking of foreign universities. These opinions, however, have not prevented some American college authorities from seeking quite properly to know the merits of individual cases and the facts regarding the institution concerned. The result is a variety of practice, some basing their administration on one opinion and some on another and some on such facts as are available in the case—a confusion which results in almost daily request for such a study as the American Council on Education proposes to make in cooperation with the Bureau of Education and other agencies.

The foregoing has reference chiefly to the proper administration of the curricula of foreign students seeking American degrees. But there is need also for information regarding the opportunities abroad for American students. Shall an American student of physiology seek admission to the laboratory of Professor Hill of London, recently awarded a Nobel prize, who may be able to care for two American graduate students, or shall such a student find proper equipment and instruction at the University of Manchester? Where shall a student of geography study? Or a student of chemistry, English literature, music, history, or fine arts? What is the opportunity in each case? Who are the teachers? What are the living conditions? What are the concomitant educational opportunities? Are any of these openings available during the summer vacation in the courses offered at the National University of Mexico, those in Quebec, those in Rome, Florence, Perugia, Siena, Oxford, London, Edinburgh, Dublin, Liverpool, Manchester, Belfast, Wales, Aberdeen, Fribourg, Geneva, Lausanne, Neufchatel,

Madrid, Vienna, Graz, Innsbruck, Brussels, Ghent, Louvain, Copenhagen, Besançon, Caen, Dijon, Grenoble, Lille, Nancy, Paris, Poitiers, Rennes, Strasbourg, Toulouse. Is there a summer course on the American plan in these or other centers? All of these things must be fully understood by those who would guide American students who wish to study abroad.

Even if the American student can find satisfactory education in foreign countries can he afford the cost. The American Council on Education in attempting to find the answer to the question has been in communication with the Atlantic Conference, comprising all the transatlantic steamship companies and with representatives of individual organizations in regard to extending to students and professors a reduction in rates. The Council has been trying to further also, for the benefit of American students, the use of the newly developed third class form of travel. Even if such a reduction is granted, it will not solve the financial problem of all students who will study in foreign countries. Scholarships are more numerous than is generally known. Information regarding these may be secured from the Institute of International Education and from the list to be published in the April EDUCATIONAL RECORD. Those granted to the American Council on Education by the French Government and universities are described on pages 21–2. Because graduate students become teachers and because it is desirable that those who will enter the professions or business will also have the advantage of studying abroad, the Council is interested in the plan of the Committee on Foreign Travel and Study. It is proposed to have not more than twenty scholarships, each worth $1,000, for the use of students who have completed two years of college work and who will return to finish the fourth year with their class. These will be available in any foreign university approved by the American Council on Education. The availability of scholarships under the control of the American Council on Education will afford, moreover, an opportunity for cooperative experimen-

tation in the adjustment of American students to foreign educational systems. Other countries do not use a quantitative measurement for classification, like semester hours. What measures of achievement can be set up as a medium of exchange between foreign universities and our own? Is it possible that such medium of exchange may be an improvement upon our domestic educational currency?

The case of the individual student in foreign parts is a concern of American parents and educators. The function of the American University Union—now an integral part of the American Council on Education—is made sufficently clear in the report of the Director of the London office during the year 1923–4 (see p. 26) and the report of the director of the Paris branch for the same period (EDUCATIONAL RECORD, October, 1924, p. 217). The Council is studying carefully the need and desirability of extending the work of the Union in other centers and of developing even more the London and Paris offices as centers of graduate study and research. Of this more will be made known later. Through the offices of the Union and in other ways it is possible to aid in and study the success of American students abroad for the sake of later students. This study is in progress. The case of the individual student, moreover, is confidently entrusted to the Institute of International Education. With the Director and his able staff the American Council on Education is cordially cooperating.

DAVID ALLAN ROBERTSON.

# The Franco-American Exchange

THE American Council on Education, to whom the French Department of Education and certain French Universities have entrusted scholarships for American student in the French écoles normales and universities, desirous of simplifying and making more effective the admistration of these scholarships and fellowships has reorganized the Committee on Franco-American Exchange in accordance with its policy of cooperating closely with the Institute of International Education. The Council, through its committee, will continue to be responsible for policies but the administration of the scholarships including selection and allocation of students, both American and French, will be in the hands of a small committee representing the Council and the Institute of International Education. This smaller committee will have its office at 522 Fifth Avenue, New York, in the rooms of the Institute, where Miss Florence Angell, who is in charge of the international relations of the American Association of University Women, will act as secretary of the committee.

Pursuant to this plan of cooperation the Committee on Franco-American Exchange of Scholarships and Fellowships at a meeting held in New York November 21, 1924, requested the Council to discharge the existing large committee and to appoint a new and smaller one. This action the Council took at its Executive Committee meeting held in Washington, D. C., January 2, 1925. The Council appointed Miss Virginia Newcomb, Chairman, and Miss Florence Angell, Secretary. Mr. J. J. Champenois, of the Office National des Universités Françaises, was made an honorary member of the Committee. Other members are Miss Margaret E. Maltby and Mr. I. L. Kandel. The Director of the

Institute of International Education, Mr. Stephen P. Duggan, and Mr. David A. Robertson the Assistant Director of the American Council on Education are members *ex officio.*

The announcement of Scholarships and Fellowships for American students has just been issued to American college authorities. With the exceptions noted the university scholarships are open to both men and women, American born, under thirty years of age, graduates of a college or university approved by the American Council on Education, and possessed of ability to understand and speak French. The scholarships offered are as follows:

The University of Bordeaux offers two scholarships[1] to American students which include board and lodging. The holders of these scholarships will be lodged in the Maison des Etudiants and will board at a neighboring lycée. It also offers free tuition to eight other American students. The subjects recommended for study are Political Science and Law, History and Geography, Tropical Diseases, French Language and Literature.

The University of Lyons offers two scholarships covering tuition, board and lodging (Maison des Etudiants and Maison des Etudiantes).

The University of Nancy offers two scholarships:[2] (1) 5,000 francs with free tuition for research work in Physics; (2) the Edouard de Billy memorial fellowship of 4,000 francs with free tuition at the "Ecole Supérieure de Métallurgie et des Mines." Detailed information will be forwarded on request.

The University of Strasbourg offers one scholarship of 2,000 francs with free tuition and lodging.

The University of Toulouse offers two scholarships (one to women and one to men) covering tuition, board and lodging, and eight scholarships carrying free tuition. American students will be especially interested in the following Institutes at the University: (1) Chemistry; (2) Electrical Engineering; (3) Agriculture; (4) Hydrology; (5) Provençal and Romance Philology; (6) French studies.

The University of Grenoble offers one full scholarship.[1]

The University of Paris offers one scholarship[2] covering tuition, board and lodging, and four scholarships carrying free tuition.

[1] Open to men only.
[2] Open to women only.

The scholarships in Ecoles Normales are open to American born women under conditions given herewith:

Certain scholarships and fellowships in the Ecole Normale Supérieure de Sèvres are open to women who have done graduate work and have a university career in view. These scholarships and fellowships are granted only to those who speak and read French easily and intend to study seriously.

The scholarships and fellowships in the Ecole Normale de Saint Germain en Laye are open to women not over twenty-four who hold a Bachelor's degree and have had some work in education. These scholarships and fellowships will be granted only to women who have the teaching profession in view. They must have a knowledge of grammatical French and such a command of spoken and written French as to be able to carry on their work in that language.

Additional scholarships will be offered at the Ecole Normales of St. Etienne and Lyons.

Applications must be sent not later than March 1, 1925, to Miss Florence A. Angell, Institute of International Education, 522 Fifth Avenue, New York, and should include: (1) a letter of application containing a detailed account of the applicant's training and aim in studying abroad; (2) a transcript of the student's record provided by the college registrar; (3) birth certificate; (4) a small photograph; (5) health certificate from the college physician, giving medical history of the applicant for the past two years; (6) testimonials from two professors with whom the applicant has studied, one being from a member of the Department of Romance Languages, and testimonials from college officials regarding the candidate's character, ability and promise of success. (The testimonials and the health certificate should be sent by the writers directly to Miss Angell. These confidential letters will not be returned to the candidate.)

Announcement of the awards will be made about May 1. Scholars entering the Ecoles Normales will sail about the middle of September; those entering Universities will begin their work the first week in November.

For passage over and back a rebate of 30 per cent is allowed on the French line. In the Ecoles Normales board, lodging and tuition fees are provided. The candidate, however, should have $20 a month for incidental expenses.

During the year 1924–5 the following American students are enjoying these scholarships awarded by the French government and universities:

## FRENCH UNIVERSITY SCHOLARSHIPS

*University of Bordeaux*

| | | | |
|---|---|---|---|
| Mr. Maurice Erlich | A.B. | Rutgers College | Political Science |
| Mr. L. R. Wheeler | A.B. | Middlebury College | Political Science |
| Miss E. Veazie | A.B. | University of Oregon | Romance Languages |
| Miss G. Metcalfe | A.B. | Whitman College | Romance Languages |
| Miss H. M. Deane | A.B. | Hunter | Romance Languages |
| Miss LindaVanNorden | A.B. | Stanford University | Romance Languages |
| Miss Frances Noble | A.B. | Northwestern University | Sociology |

*University of Lyons*

| | | | |
|---|---|---|---|
| Mr. Joseph Brown, Jr. | A.B. | Boston University | Romance Languages |
| Miss M. Cox | A.B. | Vassar College | Chemistry |

*University of Nancy*

| | | | |
|---|---|---|---|
| Mr. Albert T. Fellows | M.S. | Rutgers College | Physics |

*University of Strasbourg*

| | | | |
|---|---|---|---|
| Miss Conklin | A.B. | Smith College | History |

*University of Toulouse*

| | | | |
|---|---|---|---|
| Mr. Paul C. Daniels | A.B. | Yale University | Romance Languages |
| Miss A. Ahlstrom | A.B. | Northwestern University | Romance Languages |
| Mr. Marshall Chandler | A.B. | Knox College | Romance Languages |
| Mr. A. E. Terry | A.B. | Emory University | Romance Languages |
| Miss E. J. Walker | A.B. | University of Delaware | Romance Languages |
| Miss A. Smyth | A.B. | Sweet Briar College | Romance Languages |
| Miss G. Troy | A.B. | University of Michigan | Romance Languages |

*University of Grenoble*

| | | | |
|---|---|---|---|
| Mr. Roland F. Doane | A.B. | Harvard University | Romance Languages |

*University of Paris*

Miss M. Nicolson.....A.B. Barnard College.....Philosophy
A.M. Bryn Mawr
Miss Day Munroe.....A.M. Teachers College,
Columbia Univ....Bio-Chemistry
Miss B. Sullivan.....B.S. University of Minnesota.....Bio-Chemistry
Miss M. Ashford.....A.B. Florida State College
for Women.....Philosophy and Psy-
A.M. Clark University chology.
Miss L. Dillingham.....A.B. Bryn Mawr College...Romance Languages

## ECOLE NORMALE SCHOLARSHIPS

*Clermont-Ferrand*

Lillian Lowans.....Geneva College
Lavinia Schaeffer.....Yankton College
Geraldine Spaulding.....University of Missouri

*St. Germain-en-Laye*

Helen Parker.....Radcliffe College
Dorothy Jones.....University of Wisconsin
Angela M. Weiss.....University of Pennsylvania
Helen T. Klein.....Radcliffe College
Helen Schryver.....Rockford College

*St. Etienne*

Carol B. Bogman.....Brown University
Eloise Brooner.....Northwestern University
Dorothy Herrington.....Stanford University
Jennie E. Vaden.....Randolph-Macon College

*Melun*

Ruthelia Kein.....Wells College
Stella M. Coesfeld.....University of Chicago

*Lyons*

Lucille McDonnell.....Iowa State College
Elinor Brown.....Radcliffe College

*Sèvres*

Marjorie L. Henry.....Radcliffe College
Agnes H. Houghton.....University of Michigan

## LYCEE SCHOLARSHIPS[1]

*Versailles*

Dorothy Tisch.....Western Coll. for Women
Jean Wheeler.....Reed College
Harriet Horn.....Hiram College

*Victor Duruy*

Helen Hall.....University of Michigan
Gertrude Humbert.....Carroll College
Caroline E. McEwen.....Reed College
Vivian Little.....Agnes Scott College

DAVID ALLAN ROBERTSON

[1] No lycée scholarships will be awarded for the coming academic year, 1925–26.

# The British Division of the American University Union

IN GENERAL the familiar lines of activity developed during the preceding years, and especially through four consecutive years of service by my predecessor, Dr. MacLean, have been continued. A well organized and efficient office under the direction of Mr. R. H. Simpson, assistant director, greatly aided adjustments of the director in multifarious official relations with educational officers, societies, and institutions. Necessarily the first months of incumbency of a new director are largely occupied in establishing those personal contacts which facilitate transaction of official business. The uniform courtesy and cordiality of one's British associates, their recognition of the value of the American University Union, their wish to cultivate intimate relations of cooperation with American higher education, make the process most pleasant. Particular acknowledgment for both personal and official assistance is due to the British Universities Bureau and its distinguished secretary, Dr. Alexander Hill.

During the year a special effort was made to renew and strengthen relations with universities other than those in London, Cambridge, and Oxford. Visits were made by the Director to Manchester, Birmingham, Sheffield, Leeds, Glasgow, Edinburgh, and St. Andrews. Conferences were held with administrative officers and groups of the staffs, resulting in better mutual understanding of many problems common to America and British institutions but whose differing aspects need some degree of interpretation for all concerned.

It ought to be more clear than it is to American professors and students that the newer ("modern") universities

of Great Britain welcome our students to the use of their excellent facilities and that adjustments in transfers from our institutions to theirs are less difficult than in the universities of Oxford and Cambridge. American students tend to resort almost exclusively to Oxford, Cambridge, and London, with small numbers in Edinburgh and occasionally in other British universities. The system of residential colleges which is distinctive of Oxford and Cambridge requires careful limitations upon numbers of their foreign students so that only those Americans are desired who purpose to remain long enough (usually three years) to read for an honors degree, and whose college training closely approximates the typical preparation of British schools. Satisfactory and distinguished opportunities for study and research will then be found by qualified Americans in other British universities, not only in London but in other centers as well.

The interchange of college students on a large scale between Great Britain and the United States has been seriously proposed and has had the attention of a special committee of the American Council on Education. The above discussion bears upon the problems involved in such proposals. It would be extraordinarily difficult to provide for more American students in British residential colleges. Very heavy costs would have to be incurred for added residential halls, equipment, and staff. Also, articulation of collegiate curricula between the institutions would require large changes if exchanges for one year (or even two years) were to be arranged. Scottish universities and the modern English universities, institutions more nearly similar to ours in organization and administration of courses, and in which residence halls are not a necessary feature, would be favorably situated to give American students interchange privileges if a well organized system were to be developed.

I do not attempt to discuss here problems of the advantages or disadvantages of interrupting the college

courses of undergraduates by intervals of a year for the sake of foreign experience. British educational officers cordially express their desire to give every possible consideration to American students who may be sent to them. While they are not convinced that American undergraduates will greatly profit by a year or more spent in exchange, they recognize that our American institutions must decide such questions. So far as their own undergraduates are concerned they generally hold the opinion that a year spent in an American college or university would add that time to a period required for their British degrees.

Large numbers of graduate students, men and women of marked ability, are eager to migrate from British to American universities for continued research and broader experience. The year has been marked by the donation of the Clarence Graff Fellowship to send a graduate of Oxford or Cambridge to some American university situated in the Mississippi Valley. Mr. Graff is an American banker resident in London and was led by his appreciation of the work of the Union to make his generous gift. Through the English speaking Union the Riggs Fellowships for British students in the University of Michigan have also been founded, and the officers of the Union have been asked to assist in their administration. The Laura Spelman Rockefeller Fund has lately initiated a comprehensive plan for choosing and assisting British graduates of unusual ability in the fields of Social Science to continue their investigations in selected American universities. One may hope that the tendencies thus revealed will soon bring to the United States numbers of selected British students comparable to the movement of Americans in the reverse direction under the Rhodes Trust.

The service rendered by the Union to British university administrative officers and to government educational authorities includes frequent interpretation of the significance and equivalent values of American certificates and degrees. Standardizing agencies have greatly simplified all such

questions by establishing lists of approved colleges, universities and professional schools which can be used with confidence. American higher education still suffers abroad in prestige from the existence of degree-granting organizations under lax laws in several states and the District of Columbia. Clever advertising of claims to legal sanction of "charters" (actually articles of incorporation under general laws), followed by soliciting of plausible agents, brings many enrollments of students for correspondence and home-study degrees. False analogies with British "external degrees" furnish another cloak for the marketing of commercialized degrees. Then "British holders of American degrees" project organizations to procure public recognition and to foster international comity in education! Men who have the confidence of the public are misled by such pleas into accepting honorary positions implying endorsement. The officers of the Union have to spend not a little time disabusing the minds of inquirers on such substitutes for higher education in America. The obvious remedy would be to have adequate laws for public supervision of degree-granting institutions in all American jurisdictions.

The Union has continued to maintain active cooperation with the American Embassy, the office of the Consul General, the English Speaking Union, the Sulgrave Institution, the Reunion of British War Missions, the World Association for Adult Education, and other societies of similar character and purpose. Other useful functions of miscellaneous character as summarized by Mr. Simpson in 1923 are still fulfilled. The most troublesome in recent months has been the application of new passport regulations to students and professors as "non-quota immigrants."

Two needs of the London office should be emphasized. The first is more adequate quarters. The location in the same building with the British Universities Union on Russell Square is excellent, but two rooms (one of them very small) are not sufficient for the office force and their

many callers. The second is more adequate information in American colleges and universities about the Union and its gratuitous services on all points of international educational relations, personal and institutional. Would not a regular news summary in THE EDUCATIONAL RECORD serve this purpose?

Permit me finally to express my appreciation of the opportunities enjoyed as Director in London, and the hope that the closer affiliation with the American Council on Education will enable the Union more adequately to attain its declared objects.

C. A. DUNIWAY.

# The Modern Foreign Language Study

THE GROWING acuteness of questions concerning the secondary school program has been apparent for many years. This was recognized in 1913 by the appointment of a committee of the National Education Association on the program of secondary schools; and the flooding of the public high schools with pupils in the past ten years has complicated the pedagogical question by an economic interest that has made a study of the entire situation a social and financial necessity. This was further reflected in the mathematical investigation, a report of which, the *Reorganization of Mathematics in Secondary Education,* was issued in 1923, various enquiries regarding the teaching of history, and the Classical Investigation, the first volume of which came from the press last September.

It was clear that the modern foreign languages—after English, mathematics and, possibly, Latin, the most widely studied of secondary school branches—had urgent need of a thorough study. No preliminary investigation had ever been made. The Report of the Committee of Twelve of the American Modern Language Association in 1898 was solely an outline by a group of modern language teachers of the aims and purposes of modern language teaching from the standpoint of members of the guild, and a plan for a progressive arrangement of courses, with such discussion on content and method as was valid a quarter of a century ago. Within its limitations this report was sound and well balanced and has formed the basis for planning the early years of all instruction since its issue. It needs no argument, however. to show how fundamen-

tally the situation has changed since that time. French and German were then the only subjects seriously considered, and the total number of pupils was relatively small. Especially since the war the advance of Spanish to a major position and the recession of German have created a new situation, while the secondary school registration has grown to figures probably scarcely less than a million, and the lower levels of instruction in the colleges are crowded with students.

The first move in the initiation of a systematic study was made by the President of the Carnegie Corporation in the calling together of an informal committee at Atlantic City, January 1, 1924, and a resulting petition to the corporation accompanied by the outline of the program for a thoroughgoing investigation of the present status of modern language studies in the United States and Canada, and for the development of a plan for the improvement of instruction, based on an intensive study of objectives. This petition found favor with the trustees of the corporation, who selected the American Council on Education in the United States and the Conference of Canadian Universities in Canada to sponsor the undertaking. With the cooperation of these bodies representative committees drawn from active teachers in the secondary schools and colleges, including several administrative officers, were selected to put the plan into effect, carrying on the study along similar general lines of procedure here and in Canada, with such modifications as are conditioned by national differences in population and school and college organization.

The American Committee was constituted as follows:

Miss Josephine T. Allin, Department of French, Engwood High School, Chicago.

E. C. Armstrong, Professor of the French Language, Princeton University.

E. B. Babcock, Professor of Romance Languages and Dean of the Graduate School, New York University.

C. H. Grandgent, Professor of Romance Languages, Harvard University.

C. H. Handschin, Professor of German, Miami University.

E. C. Hills, Professor of Romance Languages, University of California.

A. R. Hohlfeld, Professor of German, University of Wisconsin.

Miss Josephine Holt, City Supervisor of Foreign Languages, Richmond, Va.

W. A. Nitze, Profesor of Romance Languages, University of Chicago.

W. R. Price, Supervising Expert on Modern Langauges, New York State Department of Education, Albany.

Louis A. Roux, Department of French, Newark Academy, Newark, N. J.

Julius Sachs, Professor Emeritus of Education, Teachers' College, Columbia University.

E. B. de Sauzé, Director of Modern Languages, Cleveland.

W. B. Snow, Associate Superintendent of Schools, Boston.

Miss Marian P. Whitney, Professor of German, Vassar College.

E. H. Wilkins, Professor of Romance Languages, University of Chicago (since resigned).

This committee held its first meeting at the Gedney Farm Hotel, White Plains, New York, April 17 and 18, 1924, and selected as its officers:

R. H. Fife, Gebhard Professor of Germanic Languages, Columbia University, Chairman.

J. P. W. Crawford, Professor of Romance Languages, University of Pennsylvania, Vice-Chairman.

R. H. Keniston, Professor of Romance Languages and Dean of the Graduate School, Cornell University, Secretary.

and as Special Investigators:

Algernon Coleman, Professor of French, University of Chicago.

Charles M. Purin, Lecturer in German, Hunter College, New York.

Carleton Ames Wheeler, Supervisor of Modern Languages, Los Angeles.

A central office was opened at 561 West 116th Street, New York City, with a branch office in Chicago, and steps were taken to form contacts with all organiations throughout the country, either independent associations of foreign language teachers or sections of the State Teachers Associations. The Classical Investigation had just concluded its labors and was able to furnish valuable data regarding

preliminary moves in organization, and to offer many suggestions as the result of its three years of collaboration with the departments of education and educational psychology. The Bureau of Education in Washington promised its help, and Commissioner Tigert authorized the issuance in November of an exploratory questionnaire, asking for preliminary information from the 20,000 secondary schools in the United States. At the same time the colleges were appealed to for information regarding their courses. For purposes of more direct communication with the field of study the country has been divided into eight sections, with a regional committee under each of the following chairmen:

I. *New England* (Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont).
*Mr. Maro S. Brooks,* Supt. of Schools, Medford, Mass.

II. *Middle States and Maryland and District of Columbia.*
(District of Columbia, Maryland, New Jersey, New York, Pennsylvania).
*Professor James F. Mason,* Professor of Romance Languages, Cornell University.

III. *The South* (Alabama, Florida, Georgia, Kentucky, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Virginia).
*Professor W. S. Barney,* Professor of Romance Languages, North Carolina College for Women, Greensboro.

IV. *North Central States* (Illinois, Indiana, Iowa, Michigan, Minnesota, Ohio, Wisconsin).
*Professor B. Q. Morgan,* Associate Professor of German, University of Wisconsin.

V. *West Central States* (Arkansas, Kansas, Missouri, Nebraska, Oklahoma).
*Miss Lillian Dudley,* Kansas State Teachers' College of Emporia.

VI. *The Southwest* (Arizona, Colorado, Nevada, New Mexico, Texas, Utah).
*Miss Lilia Mary Casis,* University of Texas.

VII. *The Northwest* (Idaho, Montana, North Dakota, Oregon, South Dakota, Washington, Wyoming).
*Professor E. O. Eckelman*, Professor of German, University of Washington.

VIII. *California.* *Mr. Geo. W. H. Shield*, Acting Supervisor of Modern Languages, Los Angeles.

These chairmen, with the aid of sixty-five committeemen, will be of valuable service in gathering information in the various localities where the conditions of modern language study differ widely, and in putting into action such tests and experiments as may be found to be of importance.

On the basis of its work during the fall the Investigation Committee prepared and submitted to the Committee on Directions and Control at Princeton, N. J., December 31, 1924, to January 2, 1925, a preliminary report setting forth in detail its plan of campaign.

It is plain that if concrete results are to be attained within a measureable time the study must devote itself chiefly to the teaching of the modern foreign languages in the secondary schools and in the corresponding lower levels of collegiate instruction. There it is intended to make the investigation as complete as possible. Statistical information will be gathered to show the total number of foreign language students and their distribution in various sections of the country, as well as in the various years of instruction. Furthermore, the objectives of study must be submitted to a rigid test. It is conceded that the study of foreign languages is of importance for American youth, and the committee will undertake no *apologia* for these subjects. There is, however, great doubt as to the character of present achievement, and an imperative need by school administratives and teachers of evaluating progress in these subjects by a series of standardized tests. These do not now exist and must be invented and tried out, if an improvement in fundamental instruction is to be brought about. The committee assumes as the four *immediate* objectives of instruction in the modern foreign languages a progressive development—

1. Of the power to read the foreign language.
2. Of the power to understand the language when spoken.
3. Of the power to speak the language.
4. Of the power to write the language.

On the development of these powers and skills depends the attainment of any *ultimate* objectives of modern language teaching.

Any subject of study must, however, justify itself by other standards than those contained simply in the progressive acquisition of powers and capacities. It must show that these powers are ultimate value to the student after formal study of the subject has ceased. If the modern foreign languages are to have validity as subjects for secondary school and college, they must be so taught and studied that they shall be of propedeutic value for other subjects, or represent an ultimate attainment in themselves. With this in mind the committee has posited a number of *ultimate* objectives, as possibly capable of attainment through the study of modern foreign languages.

1. Ability to read the foreign language with ease and enjoyment.
2. Ability to communicate orally with natives of the country whose language has been studied.
3. Ability to communicate in writing with natives of the country whose language has been studied.
4. Increased ability to pronounce and understand foreign words and phrases occurring in English.
5. Increased ability in the accurate and intelligent use of English.
6. Increased power to learn other languages.
7. A more effective realization of the habits of correct articulation and clear enunciation.
8. Increased knowledge of the history and institutions of the foreign country and a better understanding of its contribution to modern civiliation.
9. Increased ability to understand ideals, standards, and traditions of foreign peoples and Americans of foreign birth.
10. Development of literary and artistic appreciation.
11. Development of a more adequate realization of the relation of the individual to society.
12. A clearer understanding of the history and nature of language.

13. Increased ability to discern relationships and make comparisons between subjects allied in form or content.

14. Development of habits of sustained effort.

15. The ability to make prompt and effective use of foreign discoveries and inventions.

16. Development of social adaptability through increased personal contacts.

These objectives are to be submitted to a program of test and controlled experiment, with the object of ascertaining the proportion of students of the modern foreign languages for whom they would have validity, the possibility of their atainment and the best means to be employed therefor. It is manifest that this implies a program which constitutes a challenge to departments of secondary education and of educational psychology, and that the tests and experiments involved will necessarily be of varied difficulty. Indeed, as regards the disciplinary objects it is possible that the only test will be in the gathering of authoritative opinion. For the purpose of organizing and carrying out its testing program the committee has retained Professor V. A. C. Henmon, Director of the School of Education, University of Wisconsin, who will devote a considerable part of his time to cooperation with the investigators in this task. The work has already been begun upon the consideration of a number of tests and it is expected that the stage will be set by the beginning of the academic year 1925–26 for putting these into operation.

Another very important part of the committee's work will be a thorough investigation of the present status of the training of modern language teachers in this country. This is a very important part of its program, because, unless the factor of training can be greatly improved any recommendations that may be worked out for the improvement of content and method and for a clearer envisaging of objectives will come to naught.

The above is the general program as the committee has outlined it. It is not possible at the present time to indi-

cate more definite lines of procedure. The Carnegie Corporation has been liberal in its appropriation, both for the American and for the Canadian committee, and college and school administratives and teachers of modern languages throughout the country have been prompt in offering support. With such assets at its command the committee is convinced that at least very definite information as to the present situation will be obtained and hopes that a program will be evolved which will in time bring the teaching of the modern foreign languages to a higher level of efficiency.

ROBERT HERNDON FIFE.

# Cooperative Experiments in Education

SINCE the publication of the last number of THE EDUCATIONAL RECORD (October, 1924), significant progress has been made in developing cooperative experiments in education.

The number of institutions that have used the psychological test for college freshmen has increased from 60 to 97. The test has been given to nearly 40,000 freshmen, and reports of the scores made are coming in steadily. The Commonwealth Fund has made a grant of $5,000 to the American Council on Education to cover the cost of reduction of the returns and preparation of a revised test for issue next summer.

The statistical work of computing the norms is progressing under direction of Prof. L. L. Thurstone of the University of Chicago. The correlations between scores on the test and college grades will be worked out next summer when the college grades are available after the close of the college year.

The institutions cooperating in this enterprise are much interested in it. Many have expressed appreciation of the opportunity to contribute to the solution of this important problem of college entrance tests under the guidance of competent experts in this field. As a result of volunteering to serve in a common cause, each participant is helped in working out its own problem by its own efforts and at the same time is helping others to reach more reliable conclusions.

The foregoing experiment has also been useful in furnishing a concrete case with which to develop the technique of handling cooperative experiments. Study and analysis

of this experience has prepared the way for enlargement of the scope of the enterprise to include other phases of the problem of personnel administration and vocational guidance of college students. As a result, the following plan of further action has been evolved by the National Research Council Committee on this subject.

Under the guidance of this committee, a conference on the problem of vocational guidance of college students was held at the National Research Council on January 1, 1925. All fourteen of the institutions that had been invited to send representatives to the conference had accepted and named delegates as follows: L. L. Thurstone, University of Chicago; E. L. Thorndike, Columbia University; B. D. Wood, Columbia University; R. M. Ogden, Cornell University; Harry R. Wellman, Dartmouth College; Henry W. Holmes, Harvard University; C. E. Seashore, University of Iowa; T. L. Kelley, Leland Stanford University; C. S. Yoakum, University of Michigan; D. G. Paterson, University of Minnesota; F. F. Bradshaw, University of North Carolina; D. T. Howard, Northwestern University; Carl C. Brigham, Princeton University; F. H. Allport, Syracuse University; John E. Anderson, Yale University.

In addition there were present from the Research Council's Committee Messrs. H. E. Hawkes of Columbia, Vernon Kellogg of the National Research Council and C. R. Mann of the American Council on Education. Special guests in attendance were: W. V. Bingham, National Personnel Federation; J. J. Coss, Columbia University; J. F. Dashiel, University of North Carolina; Homer E. Dodge, University of Oklahoma; C. E. Hewitt, War Department; J. B. Miner, University of Kentucky; William E. Mosher, University of Syracuse; L. R. O'Rourke, Civil Service Commission; J. A. Randall, Rochester Mechanics Institute; R. S. Woodworth, National Research Council; J. W. Yarborough, Southern Methodist University.

An all-day discussion of the problem led to the organization of the representatives appointed by the fourteen insti-

tutions mentioned above into an advisory council on vocational guidance of college students. It was agreed that this body should have power to increase its membership. Dean H. E. Hawkes of Columbia was elected chairman and instructed to appoint an executive committee of five of which he should also be chairman. It was the sense of the meeting that the American Council on Education would be the best sponsor for the project.

Discussion of nature of the problem led to its subdivision into three major parts, namely, job specifications, measurement of human abilities, and technique of adjustment between men and jobs. On the basis of this analysis it was agreed that the work of the advisory council might well begin with developing cooperation on three specific tasks; namely, making analyses of the requirements of medicine and business in order to formulate useful personnel specifications, extending cooperative experiments with objective tests, and developing personnel offices in colleges. A necessary concomitant of these would be maintaining a news service to keep all concerned informed of developments.

Having agreed upon this general outline of a plan of action, the executive committee was instructed to formulate the plan in greater detail, to canvass the field and nominate to the council a suitable director of the work, to seek the necessary financial support, and to settle the questions of sponsor and of location of the central office.

The principles and technique of cooperative experiment exemplified in the activities just described are applicable to a large variety of educational problems. Thus the subcommittee on program of the committee on Standards of the American Council on Education has made this idea the backbone of its coming meeting on March 12 and 13. Plans for using the idea in developing more uniform certificates, standards and terminolgy in the college will there be discussed.

The Council's Committee on the Modern Foreign Lan-

guage Study is also formulating plans for making cooperative experiments in teaching foreign languages. It is clear that if the committee itself does all the weighing of evidence and formulation of conclusions before issuing its report, several years will pass before teachers will have digested the report enough to put the recommendations into effect. But if a number of schools are trying practical experiments under guidance of the committee and are thus contributing to the formulation of conclusions as the work progresses, then when the report is issued its recommendations will already be in operation in a number of schools.

Similarly the Council's Committee on a Study of Teaching English has revised its plan to include cooperative experiment as a conspicuous factor. The revised plan calls for a short summary of present conditions, the analysis of these conditions by a committee of competent judges, and the formulation of definite, simple experiments designed both to yield additional data needed to draw valid conclusions and to guide teachers to achievement of better results by their own efforts under competent leadership.

Another field in which cooperative experiment and study are developing is that of appointment, tenure and promotion of college and university teachers. A significant study has recently been made on this subject at Smith College by a joint committee of its own trustees and faculty. A conference on this subject held in Washington, January 2, at the invitation of the American Council on Education, voted to recommend to the Council that it undertake to assemble the facts on this subject and make them available to its members. To do this effectively requires first a cooperative study of each institution by its own trustees and faculty and then a cooperative study among institutions of such data as each is willing to make public. A similar study of college finance will be possible as soon as the final volume of the report of the Finance Commission is issued.

The Community Score Card issued by the Federal Council of Citizenship Training is another application of the principles of cooperative study and experiment to social and economic progress. It stimulates communities to study their own conditions themselves and to experiment together in finding remedies for their own defects.

Questionnaires and surveys are useful tools of investigation. But questionnaires and surveys are now so numerous that many school officers are on the verge of revolt. They are ready to welcome any new method that promises to get reliable and much needed basic facts about schools with less paper work and more action. They also prefer to have a hand in the pioneer work of perfecting school practice rather than to read ready-made plans constructed by others.

For reasons such as these, the questionnaire and the survey are yielding place to cooperative experiments. As in other fields, so in education, compiled opinion is proving a less reliable leader than organized facts. Educational experiments are now regarded as essential to sound progress. They are justifying themselves by the demonstrable results achieved by their intelligent use.

The technique of educational experimentation has been developed by working with relatively small numbers of cases in particular institutions. Under these conditions special features of the local situation often affect the findings and render the results ambiguous. The validity of the results is more readily accepted when concordant conclusions are reached independently by different observers who have tried the same thing in different places. Cooperative experiment and study make this possible. Hence the widespread and rapid development of such guided experimentation wherever its underlying principles are understood.

C. R. MANN.

# Survey of Northwestern University

IN THE SPRING of 1923 the Board of Trustees of Northwestern University ordered the President to make surveys of the several schools within the university.

During the earlier part of the following school year the project was brought before the University Council, a body composed of representatives of all the schools within the university. The Council voted to cooperate with the President and he in turn asked that body to recommend a plan of procedure.

In response the Council appointed a Committee of Five. The Memoranda on Educational Studies is a report of this committee and was accepted by the President as the plan according to which the surveys would be undertaken.

During the school year 1923-24 the study of the Schools of Medicine and Dentistry were completed, and that of the School of Law was carried partly through. The studies of the other schools are being undertaken this year.

Northwestern University has been exceptionally fortunate in the individuals who as outsiders have consented to take part in this work. A list of these persons with the names of the respective schools with which they have worked or will work is given here:

Prof. John J. Coss (Columbia University), College of Liberal Arts.
Dean E. P. Lyon (University of Minnesota), Medical School.
Dr. W. F. Geis (Carnegie Foundation), Dental School.
Director C. R. Mann (American Council on Education), School of Engineering.
Dean Charles M. Thompson (University of Illinois), School of Commerce.
Prof. J. M. O'Neill (University of Wisconsin), School of Speech.
Prof. Frank Scott (University of Minnesota), School of Music.
Dr. Alfred Z. Reed (Carnegie Foundation), Law School.
Dean J. H. Tufts (University of Chicago), Graduate School.
Dean S. J. Kelley (University of Minnesota), School of Education.

The general scope and plan of all the studies are outlined in the following memorandum:

## MEMORANDUM ON EDUCATIONAL STUDIES

### *I. Prefatory Statement*

1. It is to be understood that the accompanying outline is to be thought of as a general plan, and that it cannot be expected to cover in detail every point that may arise in the conduct of any study. This is true particularly of Part III, dealing with the matters to be included in the Survey.

2. When the study is to be made the President shall forward to the Dean or Director, for transmissal to the faculty, notice thereof in writing, together with a copy of the general plan sufficiently in advance to secure due notification to the faculty.

3. Each report shall bear the signature of all the members of the commission, with or without reasons, or else some memorandum explaining the absence of the signature of any member.

### *II. Purpose of Educational Studies*

1. To define the primary objectives of Northwestern University in each of its schools, and as a University, including contribution to public welfare.

2. To make as reliable a judgment as possible upon how well Northwestern University, through its several schools, is at present achieving the results which it should achieve.

3. To discover and make recommendations concerning what Northwestern needs in order to achieve the resired results.

### *III. Matters To Be Included in the Studies*

1. *Physical equipment:*

(*a*) Physical conditions, buildings, and conditions bearing upon health and safety of students and faculty.

(*b*) Equipment and use of laboratories and libraries.

(*c*) Adequacy and class, laboratory, library and office space.

2. *Instruction and research:*

(*a*) School and department ideals as to the objectives and standards of research and teaching employed in selecting faculty members and assigning courses.

(*b*) Basis for advancement and promotion.

(*c*) Organization and administration of instruction. (For example, size and sectioning of classes, costs of instruction, basis of student selection for departments and courses, student turn-over.)

(*d*) Entrance requirements.

(*e*) Courses of study and requirements for degrees.

(*f*) Standards and measures of student attainment.

(*g*) Relation of graduate to undergraduate courses, and their utilization and instruction.

(*h*) Opportunities for research by students and faculty.

(*i*) Comparative achievement of the graduates in their respective fields.

3. *Students:*

(*a*) Student personnel. (For example, sources, types, distribution.)

(*b*) Educational response of students.

(*c*) Student honors, and standards and measures of scholarship prevailing among the students.

(*d*) Student life and moral standards, including moral and religious agencies and activities.

(*e*) Extra curricular life of students.

4. *Organization and administration:*

(*a*) Organization and administration of schools and departments.

(*b*) Records and methods of accounting.

(*c*) Distribution of budget; salary scales, equipment, administration, repairs, etc.

(*d*) Fellowships, scholarships and various forms of financial help.

(*e*) Utilization of part-time instructors.

5. *Contribution to public welfare:*

(*a*) To charitable projects.

(*b*) To the advancement of the professional or other vocational interests served by the particular department or school.

(*c*) To civic and commercial fields.

(*d*) General.

## *IV. Persons to Make the Studies*

1. One person from the faculties of Northwestern University to serve as general chairman of all the studies made. Each commission to choose one of the members as sub-chairman for that particular study.

2. One specialist from outside of the University for each school to be studied.

3. One person from the faculty of the school to be studied.

4. One alumnus of the school to be studied.

5. One person from another faculty of the University for each school to be studied.

6. Personnel provided in 1, 2 and 3 may recommend additional members.

7. All to be appointed by the President of the University.

8. The Board of Trustees to be invited to appoint one of their members for each study, if they choose to do so.

*V. Methods of Obtaining the Data To Be Reported in the Studies*

1. Personal interviews with members of the faculty of each school and clerical help of each school by arrangement with the Dean or Director of the School.

2. Comparative examination of courses of study, records, reports, etc.

3. Scientific collection, tabulation, and interpretation of objective data.

4. Visiting laboratories, clinics, libraries and classrooms, on prior notice.

5. Interviews with and questionnaires from students and Alumni, provided that questionnaires to students shall be filed beforehand in the administrative office of the school concerned, and distributed as a regular faculty communication.

*VI. Persons to Whom the Studies When Made Are To Be Communicated*

1. To the President of the University.

2. To the Board of Trustees.

3. To the Dean of each of the several schools studied, and to each acting member of his faculty, a copy of that study concerning his school.

4. To the students, such matters as the President considers would lead to increased loyalty, better scholarship, or stronger cooperation in attaining the objectives of the University.

5. To the public, such matters as the President considers to be for the welfare of the University.

R. A. KENT.

# The Personnel Register

THE RECORDS of twenty thousand college teachers are now available for the use of officers seeking instructors. There are more than fifteen hundred in English alone, about a thousand in Mathematics, as many in Agriculture, thirteen hundred or more in Economics, and so on. All ranks of college teachers are represented. Administrative officers are also included. In addition, more than two thousand graduate students who will be available for teaching next year are enrolled.

Each record includes the kind of personal and professional data usually carried by an appointment office. Names of references are provided. Registrants are encouraged to outline their future plans, mention special qualifications for their work, and make comments freely. This results in making the registration blank a human document as well as a professional record.

A representative of the Personnel Division has recently visited a number of colleges in order to discover how the usefulness of this service may be increased. Not a few administrative officers reported that they were able to make appointments as a result of information sent them. Others felt that, although they were unable to attract any of the men nominated for their vacancies, the survey of the field afforded them by these lists was highly valuable to them. Still others saw in the data sent them opportunities for gaining valuable knowledge of the professional standards, salary demands, and occupational trends in any given field.

It appears, as a result of questioning some forty administrative officers in leading colleges and universities, that there is little doubt of the need of greater coherence in the facilities for finding the right men and women for college

positions. The limitations of a mechanical device, like a register of records, when dealing with human adjustments, is fully recognized. Yet a register of records contains much of the basic data needed for an effective personnel service. Such a register is a firm foundation for objective study and experimental development of an adequate system of academic appointments.

The plan of securing a corresponding member in each of the institutions has worked to the mutual advantage of the institution and the Division. Nearly a hundred such representatives are now engaged to complete the registration from their colleges and to help in keeping the information accurate from year to year. These agents are selected from various departments, according to the organization of their particular institution. In the smaller colleges the President or the Dean often volunteers to handle the material through his own office. In some cases the work has been delegated to one of the younger members of the faculty, appointed by the President. In the great universities it is found most convenient to approach the teacher through departmental heads or Deans of Graduate Schools.

The work of the Division is so closely related to that of the college appointment office that it is possible for them to merge into an entity, one supplementing the work of the other. The college appointment secretaries have cordially endorsed the efforts being made by the Council to establish a national center where the problems of college appointments may be formulated and articulated.

Every college and university has its personnel problem. In the smaller college this is generally one of faculty make-up. In the great universities it is more often a problem of marketing the product. In fairness to the administrative officer, who spends an unwarranted amount of time and money each year in the search for the right teacher, and in justice to the teacher whose growth is often stunted by his environment, a great cooperative experiment in the direction of better adjustment of capacity to oppor-

tunity should command the support of all members of the teaching profession.

This will require recognition on the part of every administrative group of just what the Council is trying to do. It will require cooperative analysis of all common problems and free exchange of facts and suggestions. If institutions will use the register freely in finding candidates for positions and if they will, with equal freedom, submit constructive suggestions as to how the service can be strengthened, progress toward better professional conditions will be accelerated to the benefit of all concerned.

LYNDA M. SARGENT.